



Historical Gully Erosion in the Upper Mississippi River Valley Hill Country

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With prolonged European agriculture starting in the early-mid 19th century, severe gully erosion was evidenced by the early 1900s in the hill country of the upper Mississippi River valley. These were essentially of two types. The first was on hillsides mostly in pre-existing draws and small valleys but also sometimes where no flow had previously existed. A variant of this type was the trenching of small, steep tributaries but these might be considered best under tributary channel erosion. All of the foregoing produced sediment ranging from clay to boulders. The second type of gully was across high (5-15 m) Pleistocene terraces. Some of these gullies were over 1000m long and up to 30 m wide and 10 m deep. They normally formed in draws and swales with no previous channel. These produced some fines but the outwash was most often sand which in some cases covered several hectares and were up to 2-4 meters deep. Their fans often covered agricultural fields on floodplains and greatly reduced their utility. They also covered long reaches of roads, railroads and other economic activity. Often, small storms would create severe erosion and large fans. Hillside gullies produced smaller but much more coarse fans which also impacted agricultural fields, roads and farmyards. With modern soil conservation measures installed by the 1940s, many of these gullies eventually became mostly dormant except during exceptional rainfall events. But even a 500-year event of 300mm/24 hours in August 2007 reactivated most gullies only mildly.